WHAT IS CLAIMED IS:

1. A line quality monitoring apparatus, comprising:

a clock extraction unit configured to extract a clock from a received signal;

a first identifier configured to compare the received signal with a first identification level in a phase of the clock extracted by said clock extraction unit, thereby outputting an identification result;

a second identifier configured to compare the received signal with a second identification level in the phase of the clock extracted by said clock extraction unit, thereby outputting an identification result;

an EX-OR gate configured to calculate an EX-OR of the identification results of said first and second identifiers;

an error rate calculation unit configured to calculate a code error rate on the basis of an output from said EX-OR gate and the clock extracted by said clock extraction unit;

an amplitude detector configured to detect an amplitude of the received signal;

a noise power detector configured to detect noise power contained in the received signal; and

a controller configured to control a difference between the first and second identification levels to

be inversely proportional to an output from said amplitude detector and to be proportional to an output from said noise power detector.

2. The apparatus according to claim 1, further comprising a low-frequency signal source configured to output a low-frequency signal, an average value of which is the second identification level, to said second identifier, and

wherein said controller controls an effective value of the low-frequency signal output from said low-frequency signal source to be inversely proportional to the output from said amplitude detector and to be proportional to the output from said noise power detector.

3. The apparatus according to claim 2, wherein the low-frequency signal involves a rectangular wave.

4. The apparatus according to claim 2, wherein the low-frequency signal involves a sine wave.

5. The apparatus according to claim 2, wherein the low-frequency signal involves a pseudo random pattern.

6. The apparatus according to claim 1, further comprising a variable noise source configured to output noise, an average value of which is the second identification level, to said second identifier, and

wherein said controller controls a variance of the noise output from said variable noise source to be

inversely proportional to the output from said amplitude detector and to be proportional to the output from said noise power detector.

7. The apparatus according to claim 1, wherein said noise power detector includes:

a delay circuit configured to adjust phases of the received signal and an output signal of said first identifier;

a variable attenuator configured to adjust amplitudes of the received signal and the output signal of said first identifier;

a subtraction circuit configured to remove a signal component from the received signal, the phase and amplitude of which have been adjusted by said delay circuit and said variable attenuator; and

a power detection circuit configured to detect power of an output from said subtraction circuit.

8. The apparatus according to claim 1, wherein said noise power detector includes:

a third identifier configured to compare the received signal with a third identification level in a phase of the clock extracted by said clock extraction unit, thereby outputting an identification result;

a second EX-OR gate configured to calculate an EX-OR of the identification results of said first and third identifiers; and

a low-pass filter configured to output an average

value of an output from said second EX-OR gate.

9. A line quality monitoring apparatus, comprising:

a clock extraction unit configured to extract a clock from a received signal;

a first identifier configured to compare the received signal with a first identification level in a phase of the clock extracted by said clock extraction unit, thereby outputting an identification result;

a second identifier configured to compare the received signal with a second identification level in the phase of the clock extracted by said clock extraction unit, thereby outputting an identification result;

an EX-OR gate configured to calculate an EX-OR of the identification results of said first and second identifiers;

an error rate calculation unit configured to calculate a code error rate on the basis of an output from said EX-OR gate and the clock extracted by said clock extraction unit;

an amplitude detector configured to detect an amplitude of the received signal;

a variable gain unit configured to control the amplitude of the received signal to be constant in accordance with a detection result of said amplitude detector;

a noise power detector configured to detect noise power contained in the received signal; and

a controller configured to control a difference between the first and second identification levels to be proportional to an output from said noise power detector.

10. The apparatus according to claim 9, further comprising a low-frequency signal source configured to output a low-frequency signal, an average value of which is the second identification level, to said second identifier, and

wherein said controller controls an effective value of the low-frequency signal output from said low-frequency signal source to be proportional to the output from said noise power detector.

11. The apparatus according to claim 10, wherein the low-frequency signal involves a rectangular wave.

12. The apparatus according to claim 10, wherein the low-frequency signal involves a sine wave.

13. The apparatus according to claim 10, wherein the low-frequency signal involves a pseudo random pattern.

14. The apparatus according to claim 9, further comprising a variable noise source configured to output noise, an average value of which is the second identification level, to said second identifier, and

wherein said controller controls a variance of the

noise output from said variable noise source to be proportional to the output from said noise power detector.

15. The apparatus according to claim 9, wherein said variable gain unit includes a variable gain amplifier.

16. The apparatus according to claim 9, wherein said variable gain unit includes an optical pre-amplifier.

17. The apparatus according to claim 9, wherein said noise power detector includes:

a delay circuit configured to adjust phases of the received signal and an output signal of said first identifier;

a variable attenuator configured to adjust amplitudes of the received signal and the output signal of said first identifier;

a subtraction circuit configured to remove a signal component from the received signal, the phase and amplitude of which have been adjusted by said delay circuit and said variable attenuator; and

a power detection circuit configured to detect power of an output from said subtraction circuit.

18. The apparatus according to claim 9, wherein said noise power detector includes:

a third identifier configured to compare the received signal with a third identification level in a

phase of the clock extracted by said clock extraction unit, thereby outputting an identification result;

a second EX-OR gate configured to calculate an EX-OR of the identification results of said first and third identifiers; and

a low-pass filter configured to output an average value of an output from said second EX-OR gate.

19. A line quality monitoring method of detecting a code error rate by identifying a received optical signal using different identification levels and executing bit comparison after identification, said method comprising:

detecting an amplitude of the signal;

detecting noise power contained in the signal; and

controlling a difference between the different identification levels to be inversely proportional to the amplitude of the signal and to be proportional to the noise power of the signal.

20. A line quality monitoring method of detecting a code error rate by identifying a received optical signal using different identification levels and executing bit comparison after identification, said method comprising:

controlling an amplitude of the signal to be constant;

detecting noise power contained in the signal; and

controlling a difference between the different

identification levels to be proportional to the noise power of the signal.